

FEDERAL ADVISORY COMMITTEE ACT  
CLEAN AIR ACT ADVISORY COMMITTEE  
**MOBILE SOURCES TECHNICAL REVIEW SUBCOMMITTEE**

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CO-CHAIRS: MICHAEL WALSH AND ROBERT SAWYER

DESIGNATED FEDERAL OFFICIAL: PHILIP LORANG

*Draft Minutes from the Quarterly Meeting of January 13, 1999*  
*Key Bridge Marriott Hotel*  
*Arlington, VA*

**Welcome and Introductions**

Bob Sawyer, Mobile Source Technical Review Subcommittee (MSTRS) co-chair, opened the meeting, welcomed the attendees and noted that the other co-chair, Mike Walsh, could not attend the meeting. Mr. Sawyer introduced three new members to the MSTRS: Blake Early (American Lung Association), Joe Norbeck (UC - Riverside, Center for Environmental Research & Technology), and Jerry Gallagher (State of Colorado). A list of members attending the meeting is attached at the end of this document.

**Revisions to the Previous Minutes**

John Kowalczyk, Oregon DEQ, requested a change in the minutes from October 14, 1998. The text of the Innovative and Incentive Based Policies Workgroup's recommendation on OBD (page 11 of notes) should read "cell-phone or gas station data transmission capability" in the place of "transponder." The minutes were approved as amended.

**Agenda and Administrative Issues**

Phil Lorang, EPA, welcomed everyone and made the following announcements:

- Information on EPA's Y2K policy is in the packet.
- EPA's budget shows a \$1 million line item for the CE-CERT center. No agreement has been made as to how to use the money.
- EPA has assembled a Blue-Ribbon Panel to review use of MTBE and oxygenates in gasoline; information on the panel can be found in the packet.
- EPA is still looking for oil industry representation on the MSTRS.

**NAS/NRC Study to Evaluate the MOBILE Model - K. John Holmes, National Research Council**

Mr. Holmes updated the MSTRS on the NAS/NRC review of the MOBILE model. The study was mandated by Congress and uses EPA and DOT funding. The project scope is to review the model's input data, assumptions, structure, and results; make recommendations on ways to improve the model; and to evaluate the model with respect to types of mobile sources addressed. The evaluation will include analysis of data gathering methods, emerging emissions

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of importance such as particulate matter, the possibility of including possible alternative data sources (e.g., EMFAC), incorporation of modal modeling, and the overall accuracy of the model.

Dr. Ted Russell of Georgia Tech leads the committee. The committee met in December to set up policies, procedures, and to ensure a balance of interests. The meetings are open to the public. During the last meeting, the committee heard presentations from EPA and DOT federal representatives, auto industry representatives, an oil company representative, and other interested parties.

Schedule:

- The group will meet on March 4th and 5th in California. The meeting will focus on alternative modeling approaches, heavy-duty diesel, high emitter detection, I/M evaluation, and model verification.
- The group plans to finalize a report by the end summer, though this may be delayed because they will have to wait for MOBILE6 documentation. Updates on the project can be found on the web at: <http://www.nas.edu/> on "current projects" page. A search using the keyword "MOBILE" will locate the correct page.

Discussion

- Virginia McConnell, Resources for the Future, asked if the group will look at the issue of granting credits to States for their I/M programs. This study will not focus on credits. Rather, there will be an independent study to address I/M at a later date.
- John Elston, New Jersey DEP, asked which model is the focus of the study. Mr. Holmes replied that they will focus on MOBILE6.

Heavy Duty Engine Consent Decrees - Karl Simon, EPA

With a price tag of approximately \$1 billion, the recent settlement with manufacturers of heavy-duty engines marks the largest CAA settlement to date. Karl Simon from EPA's OMS discussed some of the terms of the settlement with the MSTRS.

The agreement to conduct engine and emissions monitoring improvements has been divided into four phases: Phase 1 will develop a White Paper on emissions monitoring methods; Phase 2 will evaluate emissions monitoring systems; Phase 3 will develop on-road emissions estimates to monitor real-world emissions (stop and go, high altitude, and hot and cold conditions will be tested); and Phase 4 will test engines in various stages of their useful life.

Phase 2 should be complete by the end of October 1999. Phase 4 is scheduled to begin in the 2000 model year.

Some of the characteristics of the settlement include:

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- Standards: The published 2.5 gm NO<sub>x</sub> + HC standard for 2004 will be moved to October 2002 and interim steps to get to the 2.5 level will begin in July 1999. EPA is looking for ways to get more emission benefits, such as pulling ahead on 2006 non-road standards. The developing standards will include on-road and non-road engines.
- Manufacturers are provided incentives to reduce their penalty if they can achieve target reductions within a specified time frame.
- Manufacturers will have in-use testing to ensure that new engines meet terms of the consent decree.

Currently, companies are looking at projects and seeking the necessary funding and approval to move ahead. The next steps are to review public comments and move forward on implementation of the consent decree.

**Discussion**

- A member asked why OBD is not part of the program. The response was that EPA saw such problems with defeat devices that they focused on those issues instead of OBD. Tina Vujovich, Cummins, noted that OBD is on the agenda for 1999 review.
- The settlement focuses on engine manufacturers, but truck manufacturers and truck users can also manipulate system to improve performance or cost-effectiveness at the expense of emissions. This issue was not addressed in the consent decree.
- Dave Merrion, Detroit Diesel, commented that as part of the settlement, manufacturers must offer for sale a low NO<sub>x</sub> rebuild kit which must be used by truckers at time of overhaul or rebuild. One issue is a compromise in fuel economy. Status: Manufacturers wrote plan and are waiting for approval by EPA.
- Bob Sawyer, University of California, noted the focus on NO<sub>x</sub> and asked if PM was an issue. Mr. Simon replied that NO<sub>x</sub> was the driving factor in the decision process.
- John Kowalczyk, Oregon DEQ, asked EPA if States should reflect the changes brought by the settlement terms in their SIPs. The response is that the changes should be incorporated in MOBILE6 and that States can assume slower turnover rates or change other assumptions by their own discretion.

**EPA's Health Assessment of Diesel Engine Emissions - Bill Pepelko, EPA Office of Research Development, National Center for Environmental Assessment**

EPA has prepared a health assessment for diesel engine emissions, which is currently in the internal draft phase. The review draft is scheduled to be completed in April 1999, with a final draft due in Summer or Fall 1999. The study focuses on: hazard identification (is there a causal link between agent and cancerous or non-cancerous effects?); dose response assessment (relationship between exposure and effect); and risk characterization (description of nature and magnitude of human risk). The report has two main parts:

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1. Non-cancer health effects. Most of the non-cancer data uses the reference concentration, and there is a limited body of work on non-cancer effects, which include headache, eye, and ear problems. An allergenic sensitivity development with exposure to diesel was found by an occupational exposure study.

2. Cancer risk. EPA's assessment includes a review of the occupational exposure study, which found a small, but statistically significant increase in lung cancer risk.

Other studies have found relationships between diesel exhaust and negative health effects. California recently published an assessment. These studies show consistent causal relationship between diesel exhaust and cancer. So far the California studies are the closest thing to a statement that diesel exhaust is a human carcinogen. There have been a number of recent studies suggesting that diesel exhaust enhances allergenic effects of pollens and other particulates. The most controversial aspect of these studies is to find a point estimate from an extrapolation based on ambient conditions given high uncertainty.

### Discussion

- Sam Leonard, GM, commented that Mr. Pepelko referred to "diesel exhaust" and asked if EPA really meant particulate matter? In general, EPA refers to PM, but exposure is to exhaust rather than just PM. There isn't much you can do to reduce "exhaust" but there is control can be done on PM.
  - Janet Hathaway, NRDC, commented that the decision between diesel exhaust and PM was largely political - it is important to keep in mind that epidemiological data are based on whole diesel exposure, rather than just PM. Some vapor phase toxics in exhaust are carcinogenic. PM is used as dosimeter to estimate the level of exhaust exposure.
- Dick Gibbs, New York State, asked if asthma is included in the studies of allergens. These studies have included some human subjects with asthma.
- Bob Sawyer commented that it is good to be reminded of health effects because that is our concern in mobile source emissions.
- It is significant to differentiate between diesel fueled engines rather than just diesel engines. (CNG, Methanol fit engines are called "diesel engines" by EPA. "Diesel engines" also can have spark plugs under EPA's definition.) This report doesn't include data on spark-plug engines, and only focuses on "diesel fueled engines."
- \$6-8 million in new funds for studies on health effects have recently been issued. That funding will be directed to other studies.
- Controversy of diesel exhaust and health effects may be an important part of global warming strategies, also part of PNGV strategy for U.S.
- Janet Hathaway noted that newer studies are consistent with old (30+ years) studies on trucker exposure. So far, there hasn't been much of a change in the hazard, even with changes in fuels, engines, etc.

**Meeting the Challenge of High Efficiency and Low Emissions Through PNGV**  
**Jeff Elston, New Jersey State Department of Environmental Protection, reporting for**  
**Charles Gray, EPA OMS**

The PNGV program marks an effort of industry and government working together to dramatically improve fuel economy from current levels, and to improve domestic economic growth by positioning manufacturers in the global market. The goal of the PNGV program is to build an 80 mpg family mid-size sedan (approximately 3 times current fuel economy), meet Tier 2 standards, meet all safety standards, and increase commercialization of these technologies once they are developed. The approach to the climate change problem can be made through fuel economy, decreased VMT, or use of less carbon intensive fuels.

EPA has developed a 4-stroke Diesel Injection team. High cetane fuels and other fuel options can be used in 4-stroke engines but not in compression ignition engines and on PM and NOx issues. Industry & DOE are looking at options for the classical compression ignition engine. Diesel shows promise because it is possible to get low cold start and CO emissions. Challenges for diesel use include high NOx and particulate emissions. The diesel engine will be held to Tier 2, ULEV std (PM), much lower than in commercial diesel engines.

EPA developed a combined cycle engine with a 2-cylinder methanol engine and a 3-way catalyst. Microprocessors will control the engine to operate like a diesel engine at low-loads, reducing NOx. When power is needed, the engine will operate like traditional CI gasoline engine. This technology appears to hold some promise with fuel use and NOx emissions. EPA is working primarily on alcohol fuels, particularly renewable alcohol fuels (methanol - no PM, extra flexibility with NOx). Work may be expanded to include traditional gasoline if the new budget provides adequate funding.

Mr. Elston suggested that we may not need to choose between criteria pollutants & climate change for the following reasons: (1) Technology may provide a solution. There is a chance that 4-stroke DI engines could help with the tradeoff. (2) It is not clear that diesel entering the market that would increase fuel economy & reduce emissions so manufacturers can meet CAFÉ. This is because gasoline prices are at historical lows, and consumer demand is not high for diesel. (3) Greenhouse & criteria emission control programs are not on the same policy track. There is greater societal consensus and a statutory authority to clean up air from criteria emissions. There is no such thing for greenhouse gases. (4) Vice President Gore has stated that there should not be a trade-off of air quality to gain fuel efficiency in the PNGV program. The Tier 2 standards will include a major analysis of tradeoffs in air quality and forecasts of diesel fleet penetration.

**Discussion**

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Joe Norbeck, University of California, noted that currently developing technologies for diesel exceed developing PM standards. Due to these emission problems, there may be problems with the commercial acceptability of these vehicles, particularly in California. Mr. Elston responded that Tom Cackette of CARB would discuss this issue during his presentation.

**Presentation on Clean Diesel Program - John Fairbanks, presenting for Jim Eberhardt, US Department of Energy**

Mr. Fairbanks discussed the Department of Energy's program to make clean diesel, which has different companies competing to make the best product. The goal is to achieve a 50 percent or greater improvement in fuel efficiency compared to gasoline. In 18 months, the project has moved from blank slate to testing. Clean diesel is on schedule for a commercial introduction in 2004.

Performance for vehicles running with clean diesel is comparable to the performance of the best gasoline vehicles in same size class (e.g., SUVs with 0-60 speeds in less than 10 seconds and up to 300,000 miles on the engine). The engines can run on zero sulfur fuel and have a NOx absorbing catalyst.

The SAE meeting in April will include a more complete discussion of the program.

**Discussion**

Virginia McConnell, Resources for the Future, asked about research and development on the durability of emission control devices. Mr. Fairbanks replied that the focus has been on the feasibility of installing and running the devices, rather than on their durability. They have not tested the durability of the devices.

**Emission Requirements for the PNGV Program - Tom Cackette, CARB**

Mr. Cackette discussed emerging emission standards, and raised the question of whether PNGV or diesel vehicles should get a break from those standards. CARB adopted the LEV 2 standard, effective in the 2002 model year, which includes a stipulation that trucks and SUVs up to 8,500 pounds will have to meet car standards. CARB decided to make no special standards for diesels. By 2020, the LEV2 program will provide 50 percent or more emission reductions than if the program was not implemented.

For gasoline engines, catalysts are getting more and more efficient. Cold start emissions can be further reduced through air injection methods. For diesel, the similarity is that there will have to be high efficiency after treatment for NOx and PM. However, current efficiency is around 40 percent (gasoline is near 99 percent). Also, it looks like these technologies will require very low sulfur fuel, between 0 and 50 ppm. The national level of sulfur in fuel is around

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300 ppm and in California the average is around 150 ppm. In general, no demonstration has been made to show that diesel is close to meeting LEV2 standards.

Urban Smog is a top CARB priority, followed by diesel. The board recently rejected a proposed push for diesels in the light-duty sector on the grounds that diesel is an environmental risk and because diesel particulates were recently listed as a human carcinogen (a toxic air contaminant).

Mr. Cackette suggested that PNGV proponents address the issue of low-sulfur fuel availability. If the low-sulfur fuel required to achieve emission reductions with PNGV will not be available for commercial use, PNGV planners should consider a different strategy to reduce fuel consumption.

**Discussion**

- One member asked if the PNGV program is still moving forward. Mr. Cackette responded that yes, manufacturers still working on PNGV. If money is allocated for diesels and if diesel will remain a part of the fuel mix, progress is important. Second, diesels are efficient and may be needed for global warming policies.
- Do the new LEV standards address durability of PM control? The PM standard doesn't apply directly to gasoline vehicles and therefore the LEV standards do not address PM control durability.
- Joe Norbeck, University of California/CE-CERT, commented that PNGV should not worry about LEV2 standards but if the technologies will be able to meet PM 2.5 standard.
- Bob Sawyer, University of California, commented that the Toyota hybrid to be released this year will run at approximately 2x the current fuel efficiency (50 mpg combined) and will cost approximately \$20,000. However, this car is a two-seater, which might have limited consumer sales potential in the U.S. market.

**General Comments by Margo Oge**

Ms. Oge welcomed new members to the Subcommittee and noted that the MSTRS now has 43 members. She talked about recent activity at EPA:

- A proposed Tier 2 rule is expected to be published in February. It will address tailpipe and evaporative emissions for light duty cars and trucks, and sulfur levels in gasoline. This is the first time the Agency is looking at cars and fuels as system. It is also the first time EPA has had flexibility to set emission standards, rather than having standards that have been set by Congress. EPA will move forward on an ANPR on the diesel issue. It is critical for the Agency to address diesel on parallel track with gasoline, and it is critical for the refinery community as they make investments in gasoline.

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- An Urban Air Toxic initiative is underway by the Agency in response to a requirement under the CAA to address toxic pollutants. EPA will propose a set of actions by September 1999 and finalize them by May 2000. EPA is looking at the toxicity of diesel, beyond PM. This is a critical issue for EPA.
- EPA is reopening the 2004 heavy-duty gasoline and diesel rule to examine the feasibility of meeting the 2004 NOx standards for diesel.
- The MSTRS has helped EPA assess the CAP2000 program and developed recommendations on how to revise program. The program has been finalized, approved by OMB, and will be soon signed by Administrator Browner.
- EPA will work on assessing the toxicity of MTBE. The Agency will continue to support the program but will also examine potential adverse effects on groundwater systems and air toxicity. A blue-ribbon panel has been established and is meeting for the first time in January. This panel will report back to the Administrator with recommendations by June 1999.

**Update on the CAAAC - Paul Rasmussen, EPA**

Mr. Rasmussen is the Designated Federal Official for the full Clean Air Act Advisory Committee (CAAAC). He presented an update on the CAAAC. The charter for the CAAAC was renewed in November 1997 until November 2000. This is a requirement of the Federal Advisory Committee Act (FACA). There are about eleven member changes that are now being finalized.

The next CAAAC meeting is February 4th for subcommittees and 5th for the full meeting, and will be at the International Trade Center in Washington, DC. Meetings are quarterly.

Mr. Rasmussen briefly discussed the Lab Upgrade Workgroup report that went through the FACA process. This report has been sent to senior EPA management in the Office of Air and Radiation and is being used in EPA budget discussions. The report was very helpful in making the case for resource allocation for the EPA lab. Mr. Rasmussen also mentioned a web site being developed for the CAAAC. He will make a formal announcement of this at the February CAAAC meeting. The MSTRS web site maintained by Georgia Tech will become part of this. All full committee and subcommittee work will be available on this web site. He added that Tier 2 and sulfur are going to be on the agenda for the February CAAAC meeting. Mr. Rasmussen answered questions related to the process that is followed to move issues and reports through the CAAAC.

**Organization of the MSTRS - Open Discussion**

Phil Lorang, EPA, stated that the point of this agenda item is to open the floor to discussion of how the MSTRS is going and to tell the Subcommittee where EPA thinks things



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should be headed. There are two new Workgroups that will be formed. One will focus on air toxics and will be co-chaired by Jason Grumet, NESCAUM, and Tandi Bagien, EPA, with a first meeting planned for April in Washington. The other will focus on testing heavy duty vehicles and will keep the various testing activities underway at different locations coordinated. Co-chairs have not been named yet. A meeting is expected to be scheduled before the April MSTRS meeting. Mr. Lorang stated his goals for this Workgroup are to share information related to testing heavy duty vehicles. The modeling Workgroup is moving slowly due to work on Tier 2, and is expected to be reinvigorated soon after Tier 2 activity is wrapped up.

Ms. Oge opened the floor up to member suggestions for the MSTRS. She stated that the information exchange that takes place is valuable from EPA's perspective. Tina Vujovich, Cummins, stated that the MSTRS gives the heavy duty industry an opportunity to develop synergies around some important studies and activities, and is a efficient use of resources. Pat Raher, Hogan and Hartson, stated that some of the difficult issues that the Agency faces are not always brought to the Subcommittee, such as Tier 2. Alan Lloyd, Desert Research Institute, stated that some of the important issues to be addressed relate to fuels and he believes the Subcommittee is under represented from the fuels and energy industry. Ms. Oge agreed and replied that EPA is in the process of identifying companies and individuals to invite to serve on the MSTRS.

**Update on the OBD Workgroup - Jerry Gallagher, Colorado Department of Public Health**

Mr. Gallagher presented an update of the On-Board Diagnostics Technical Review Workgroup. The OBD Workgroup has submitted a guidance document to the MSTRS that presents issues and recommendations for states that are starting OBD testing early. The Workgroup is continuing to focus on testing vehicles that have an illuminated MIL. Mr. Gallagher summarized vehicle testing underway at in Arizona, Colorado, Ann Arbor, and California. General findings to date are that OBD appears to be more sensitive than IM240, and that testers have not been able to find a "dirty" (1.5 times the standard) vehicle without an illuminated MIL. Mr. Gallagher also summarized preliminary findings from testing of over 21,000 vehicles in Wisconsin.

**Discussion**

Joe Norbeck, University of California - Riverside, discussed similar testing underway in California. Mr. Sawyer asked if it is possible to get repair data from manufacturers on MIL-based repairs. Doug Berens stated that some data are available and mentioned California's repair requirements. Sam Leonard, GM, stated that the validity of using the data for these purposes needs to be examined. Mr. Gallagher stated the Workgroup would consider this.

**Report from the Incentives Workgroup - Virginia McConnell, Resources for the Future**

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The Innovative and Incentives-Based Policies Workgroup is bringing forward recommendations for endorsement by the MSTRS, so Subcommittee action is required. Ms. McConnell began with a background of the Workgroup. The Workgroup's objectives are to investigate innovative and incentive-based policies that are of relevance to the MSTRS, consider several issues including cost-effectiveness, and make recommendations to EPA.

The Workgroup has focused on three major areas: I/M; emissions information; and OBD. Eight recommendations have been developed. These recommendations have been divided into high, medium, and low priorities. Ms. McConnell discussed each recommendation. Subcommittee members expressed interest and concern in the details of these recommendations. In the interest of time, the group decided to hear an overview of the recommendations now and address them in more detail in a conference call. The report would then be addressed by the Subcommittee at the April MSTRS meeting.

**Report from the Heavy-Duty Engines Workgroup - Glenn Passavant, EPA**

Mr. Passavant began a presentation of the activities of the Heavy-Duty Engine Workgroup. The Workgroup was formed in December 1995 to contribute to EPA's 1999 technology review of proposed exhaust emission standards for model year 2004+ heavy-duty diesel engines by assessing the merits of achieving the 2.5 gram/HP\*hr NO<sub>x</sub> + NMHC emission levels. The standards would be met through engine system modifications or a combination of engine system and fuel modifications. Mr. Passavant began with an overview of the activities of the Workgroup over the past two years. Phase 1 of the program was completed in March 1997. This phase was aimed at finding: (1) whether the combined effects of diesel fuel properties on exhaust emissions of advanced prototype engines then being developed were large enough to continue further study; and (2) to determine whether a Caterpillar 3176 heavy-duty diesel engine at SWRI was representative of "black box" engines with respect to diesel fuel effects on NO<sub>x</sub> emissions. The results of Phase 1 demonstrated that these criteria were met and triggered execution of Phase 2. Mr. Passavant presented results of Phase 1 testing.

Phase 2 was an investigation of diesel fuel and engine system effects on exhaust emissions of the "transparent" CAT 3176 engine. Dr. Sobotowski, BP Oil, talked about Phase 2. He presented details of Phase 2 and the fuel matrix design used in this phase. He also presented the results of Phase 2 testing, including fuel effects and engine hardware effects.

Phase 3 will ascertain whether Phase 2 results are representative of "black box," advanced prototype, heavy-duty diesel engines currently being developed by engine manufacturers. Three to four test fuels will be evaluated, using EPA's transient test procedure. Fuel effects on particulate emissions will be assessed in addition to NO<sub>x</sub>, HC, and CO. This phase is expected to be completed in mid-1999. A full report will be produced.

**Report from the Phase II RFG Workgroup - Debbie Wood, EPA**

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Ms. Wood distributed a draft report developed by the Phase II RFG Workgroup on fleet testing with Phase II RFG. Testing was performed on 374 test vehicles in three cities over a period of three to five months. The combined test fleets drove over one million miles with Phase II RFG, and no performance problems with Phase II RFG were reported. Fleets that participated in the test program include the Boston Police Department, the Village of Elk Grove in suburban Chicago, and the Houston Power & Light Company. The report states that well maintained vehicles should experience no unusual performance problems with Phase II RFG.

A separate study by Southwest Research Institute compared fuel economy with Phase II RFG to Phase I RFG with 12 vehicles of various makes, ages, and mileage under normal highway conditions. These results indicate no statistically significant difference in fuel efficiency between the fuels, which is consistent with other fuel economy study findings. Ms. Wood added that testing was also conducted with small engines including 177 pieces of utility, lawn, and garden equipment, with no problems reported. Citing these results, the draft study states that no vehicle or small engine performance problems are expected with Phase II RFG. Ms. Wood asked members to review the report and provide comments to her.

Focus groups have also been established in order to gather more information about public attitudes toward RFG. These groups showed that negative impressions have come from the media, and that not a single person in a set of focus groups knew there was a Phase II of the RFG program. The focus groups also demonstrated that people clearly want an understanding of mobile source programs, and that the most credible sources of information are third parties such as departments of motor vehicles, the American Lung Association, the American Automobile Association, and local universities.

The Phase II Workgroup has recommended that EPA hire some professionals to help with the communication and outreach plan. Potomac Communications Group has been contracted and has recommended an outreach program. Ms. Wood described this approach.

### **Discussion**

Mr. Becker underscored that the stakeholders will be able to deal with issues such as vehicle performance and driveability, due to the efforts of the Workgroup. But the issue of MTBE will be important and will receive a great deal of attention. Dick Gibbs, New York State, asked for further clarification of fuel pump problems that are documented in the report. Ms. Wood summarized these fuel pump problems.

### **New Air Toxics Workgroup - Jason Grumet, NESCAUM**

Mr. Grumet talked about a new Workgroup being created to look at air toxics from mobile sources. Mr. Grumet will be chairing this Workgroup with Tandi Bagien from EPA OMS. He stated that there is a lot going on in this area and a great deal of air toxics information

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is being created and analyzed. He showed graphs comparing modeled versus ambient air toxic data for some air toxics that reinforce the relationship between mobile sources and toxics. The goals of the Workgroup are to get interested parties together to understand the data. Ms. Oge added that EPA would like to work with the group to review an updated report being created by OMS staff that reexamines mobile source air toxics. Mr. Grumet and Ms. Bagien have been receiving calls from stakeholders who have expressed an interest in joining the Workgroup. He invited members to contact him or EPA if they would like to join the Workgroup.

**Wrap Up**

John T. White, EPA, stated that the MSTRS Web Site has been down for some time but is back up. This Web Site will be merging with the CAAAC Site and will be updated. The next MSTRS is scheduled for April 14, 1999 in Washington DC. The site is not known yet. Tier 2 and sulfur will be on the agenda, and EPA will work with parties to put international harmonization on the agenda. Ms. Oge asked members to offer additional agenda items to EPA.

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**Mobile Sources Technical Review Sub-committee  
List of Members or Member Alternates Attending**

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Doug Berens	Ford	(313) 594-2914
Bruce Bertelsen	Manufacturers of Emissions Controls	(202) 296-4797
Kelly Brown	Ford Motor Company	(313) 322-0033
John Cabaniss	Assn. of International Automobile Mfrs.	(703) 525-7788
Tom Cackette	California ARB	(916) 322-2892
Blake Early	American Lung Association	(202) 785-3355
John Elston	New Jersey Dept. of Env. Protection	(609) 292-6710
Jerry Gallagher	Colorado Dept. of Public Health	(303) 692-3128
Eileen Gauna	Southwestern Univ. School of Law	(213) 738-6752
Richard Gibbs	New York Dept. of Env. Conservation	(518) 485-8913
Jason Grumet	NESCAUM	(617) 367-8540
Janet Hathaway	NRDC	(415) 777-0220
John Johnson	Michigan Technological University	(906) 487-2576
John Kowalczyk	Oregon Dept. of Environmental Quality	(503) 229-6459
Sam Leonard	General Motors Corporation	(313) 556-7711
Alan Lloyd	Desert Research Institute	(702) 677-3107
Phil Lorang	EPA Office of Mobile Sources	(734) 214-4374
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